ANDREW CHU

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EDUCATION

University of Waterloo　　　　　　　　　　　　　　　　　　　　　　　　May 2029
Bachelor of Computer Science - Dean's Honours List　　　　　　　　　　　　*Waterloo, ON*

EXPERIENCE

Software Engineer　　　　　　　　　　　　　　　　　　　　May 2025 - Present
CGI　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　*Markham, ON*
- Developed an internal RAG pipeline for determining business impact of alerts by combining LlamaIndex, PostgreSQL and pgvector, enabling fast embedding-based retrieval of over 500+ internal documents
- Enabled scalable, low-latency API interactions by developing a robust backend with FastAPI, supporting async processing and multi-model inference
- Leveraged OpenAI, HuggingFace, Gemini, and Ollama for plug-and-play embedding generation and LLM inference

Data Engineer Intern　　　　　　　　　　　　　　　　　　Aug. 2024 - Sep. 2024
Alljoined　　　　　　　　　　　　　　　　　　　　　　　　　　　　*Toronto, ON*
- Debugged critical timing issue in **EEG data preprocessing** by implementing data logging system in **Python**
- Reduced data collection script performance by **20x** by refactoring **WebSocket** script to prevent deadlocking
- Designed data processing pipeline for denoising, artifact correction using **NumPy**, **Pandas**, and **scikit-learn**

Full-Stack Developer　　　　　　　　　　　　　　　　　　Sep. 2022 - Jan. 2023
Digitera Interactive　　　　　　　　　　　　　　　　　　　　　　　*Ottawa, ON*
- Led development of "Skule News" project, a **mobile school news app** to streamline student communication
- Integrated **Firebase** for authentication, real-time updates, and cloud file storage for secure backend support
- Engineered image preview feature when uploading or editing articles in **Flutter**
- Reduced frequency of in-app crashes by **20%** by resolving **6+** bugs resulting from incorrect **Firebase** queries

PROJECTS

Replate - Sustainable Delivery App (GenAI Genesis Winner) | *Next, Express, MongoDB, Flask, Cohere, Gemini, Twilio*
- Achieved **AI Eco-Mobility Award** at GenAI Genesis among 600+ competitors
- Engineered a meal recommendation system using a dual-agent pipeline with **Cohere Command R** and **Gemini**, combining user preferences with restaurant data from the *Too Good to Go* platform
- Utilized **Express** and **Flask** backend microservices to process orders and serve live delivery updates via **Twilio** SMS

EasyMeet.ca - Meetup Scheduling Website | *React, Firebase, Mocha, GitHub, CI/CD, Figma, YAML*
- Shipped a no-password mobile-first meetup scheduling website written in **React**, deployed at **easymeet.ca**
- Designed and tested **NoSQL Cloud Firestore** to protect user data from illegitimate database read and writes
- Automated **CI/CD** unit testing and deployment with build caching using **Mocha**, **Chai** and **GitHub Actions**

Baseline - EEG Fatigue Tracker (Hack49 Winner) | *Python, FastAPI, SciPy, NumPy, MNE, Matplotlib, React, Jupyter*
- Achieved **2nd Place in "Best in Neurotech"** category at Hack49 out of 42 unique projects
- Analyzed brain wave data in under **1 second** with statistical testing methods using **MNE, SciPy**, and **NumPy**
- Designed data transformation pipeline converting large misformatted brain data files into processable chunks

Eyedentify - Facial Recognition Attendance Tracker (YRHacks Winner) | *Python, Flask, React, MediaPipe*
- Developed a facial recognition attendance tracker capable of identifying multiple people from a single picture
- Achieved **2nd Place Overall** and **"Best Web App"** at YRHacks 2023 among **350+ participants**
- Implemented a **REST API** using **Flask** to analyze photos sent from a responsive **React** dashboard application

TECHNICAL SKILLS

Languages: Java, Python, C/C++, TypeScript, Go, C#, CSS, HTML, Dart, Bash
Frameworks: Next, React, MongoDB, PostgreSQL, Firebase, Supabase, Express, Flask, FastAPI, Jest, Svelte, TailwindCSS
Developer Tools: Linux, Git, Node, Figma, Docker, Postman, WSL, Vite, Vercel, GitHub, GitLab, Cursor